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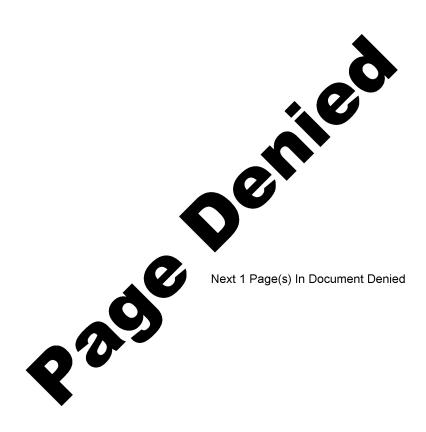
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Design Study for 5000 h.p. Propellor Turbine Prepared at KURGILINO 1947-1948.

- In March 47, the CHRISTIAN group initiated a design study for a novel propellor turbine of 5000 h.p. This power plant contained two independent turbines, one of two-stages to drive the compressor and a single stage turbine driving the propellor.
- There are also two sets of independent annular combustion chambers. The first set is placed in the usual manner between the compressor and the two-stage turbine.
- The second set of combustion chambers is placed behind this turbine and is fed by its exhaust, which still contains unburnt oxygen. Fuel is then injected into this second combustion chamber so as to raise the temperature of the gas to the same amount it possessed when entering the guide vanes of the two stage turbine (820°C). At this temperature the exhaust enters the final single stage turbine geared to the propellor. The two turbines run on concentric shafts but are mechanically independent.

. Maximum Power	5000 shp. + 15% jet thrust (800 h.p.)
Specific fuel consumption	350 gm/bhp/hour
Engine RP:	7500 24 kg/sec.
Compressor Pressure ratio	Axial flow, 12 or 14 stages
Entry air speed	m/sec. 130

(Two on concentric shafts)

- a) Compressor drive stages (b) Airscrew drive - stages

2,000 kg (complete, with airsorews)

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Project 'M'			60,000 a. h.w.	
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Project 'K'				
42. Run on the water year, the 'K' turbo-pro specific fuel consumpti German engineers associ development likely to b proven features of the	on of 240 gm/h.p./hr. ated with the project,	(at 8200 r.p.m.) the design was	According to sound and the	
43. Like the 022 the all stages to reduce bl sonio) compressor was the normal 14-stage axial f	IK! had blocks fitted ade tip loss. Though ested at KUYBUSHEV the low compressor.	inside the turb a so-called supe 'K' as finally	ine casing at reonic (trans- built had a	
was no question of adaption of mass air for chamber layout of the driving the compressor	D22 and a 5-stage turbi and airscrew reduction	d with the can-a ne coupled by a	nmular combustion rigid shaft	
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water brake to absorb	15,000 n.p. was consyl	ent establishment	which would be	25X1
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48. Of the accesso turbo-starter the mos	ries seen at KUYBYSHEV t interesting. He was CEODET	sure that it was	in series	25 X 1
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production by 1952 when there was no supply difficulty in obtaining the starter for use with the 022. When the design study of the 014 was prepared at KIMRY-SAVELOVO it was assumed that the TS-1 would be fitted. A modification of the TS-1 with increased output was used for the 'K' turbo-prop.

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such an engine starter carried on the aircraft is essential if a quick take-off of a large number of aircraft is to be undertaken.

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KIMRY-SAVELOVO (USSR) (Dec. 53-June 54)

- By July 1954 most of the German engineers and designers had been withdrawn from co-ordinated development work in preparation for their transfer to KIMRY-SAVELOVO in December of that year. Some work was done at SAVELOVO in a design study for a turbe-jet of 3000 kg. maximum thrust to power a high
- Designated the 014, this engine was to be a single shaft axial-flow turbo-jet with a twelve stage compressor (mass air flow 30 kg/sec.) and threestage turbine using the proven combustion chamber layout of the O22A series. The design incorporated all the successful features of the Q22A developed at KUINSHEV, including accessories such as the TS-1 (Cyrillic designation TC-1) turbo-starter, fuel pumps and lubrication system.

PART III - PERSONALITIES

- 51. KOLOSOV Russian director of OKB at KAZAN.
 - KUZNTISOV Head of Design office at ZAVOD II, KUMBYSHEV.
 - OVCHAROV Russian, Chief Test Stand Engineer. Worked with Dipl. Ing. Alfred CRIMM.

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